

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Economic Guidance Memorandum 00-06, Deep Draft Vessel Operating Costs

1. The enclosed Deep Draft Vessel Operating Cost information is provided for immediate use.
2. All deep draft vessel operating costs have been reanalyzed since the FY99 release. The deep draft shipping industry continues to operate in a period of consolidation and pricing pressure. Industry-wide oversupply has resulted in significant initiatives to reduce operating cost structure. As a result vessel operating costs continue to fall particularly in the containership area. These trends are supported by major industry research entities, such as Clarkson Research Studies, Cargo Systems, and Drewry Shipping Consultants. Drewry has recently stated, "For shipowners and operators, cost control (and often cost reduction) is the key to survival...Becoming a "low cost operator" appears to be the primary goal of most owners." Drewry's further distinguishes the containership industry stating it's characterized by "remorseless cost cutting...There are few sacred cows left in liner shipping – almost everything is fair game for cost cutting. "
3. The FY 2000 decrease in costs is largely due to FY2000 newbuilding prices falling from FY1999. Shipbuilding prices have continued to fall since they peaked in the 1991-92 timeframe. Insurance and crew costs have also fallen for most vessel categories and sizes. Although the absolute costs have decreased, the slope change between sizes of vessels is minor which mitigates the effect on project evaluation.
4. The addition of 4,800 teu U.S. Flag Containership: Foreign Trade Vessel Operating Costs is provided in the Guidance.
5. Questions concerning this memorandum can be addressed to Ron Conner, CECW-PD, 202-761-0132.

FOR THE COMMANDER:

Encl

/s/  
JAMES F. JOHNSON  
Chief, Planning Division  
Directorate of Civil Works

FY 2000 PLANNING GUIDANCE  
DEEP DRAFT VESSEL COSTS

CONTENTS

	<u>Pages</u>
I      Introduction	1-2
II     Estimated Vessel Costs	
Foreign Flag Tankers: Non-Double Hull (14)	3-4
Foreign Flag Tankers: Double Hull (14)	5-6
Foreign Flag Bulkers (12)	7-8
Foreign Flag Containerships (15)	9-10
Foreign Flag General Cargo Vessels (6)	11
U.S. Flag Tankers: Non-Double Hull (13)	12-13
U.S. Flag Tankers: Double Hull (13)	14-15
U.S. Flag Bulkers (10)	16-17
U.S. Flag Containerships: Domestic Trade (7)	18
U.S. Flag Containerships: Foreign Trade (13)	19-20
U.S. Flag General Cargo (6)	21
III    Appendices	
A      Vessel Characteristic Regressions	A-1
B      Marine Fuel Prices	B1-9

## **Deep Draft Vessel Costs**

### **Introduction**

The deep draft vessel costs shown herein are provided for use by Corps of Engineers planners in studies to determine the potential benefits of harbor improvement projects. It is the latest in a series of revised or updated vessel costs published every one to two years since the 1960's. This set of costs updates the FY99 Costs, published January 1999.

The accompanying Vessel Operating Cost worksheets show costs, dimensions, typical service speeds and immersion rates for a large number of vessel types and sizes. Corps studies usually require determination of vessels of specific intermediate sizes. To calculate dimensions of intermediate sizes, use the formulas for relating deadweight to draft and other dimensions shown in Appendix A. To calculate vessel costs, linear interpolation of costs is appropriate to determine the operating cost for a vessel different than the sizes given. The vessel dimensions in the cost tables are all in feet. All weights (deadweight, fuel consumption, tpi) are in metric tonnes.

### **2000 Explanatory Notes**

Vessel Capital Costs. . Corps studies contemplate investment in new harbor works, therefore, all vessels are priced as new and are amortized at the discount rate (6 5/8%) used to evaluate Corps harbor projects. This is because a 50 year project life would require the vessel fleet to be renewed. Replacement costs for all types of vessels have been based on a ten year average to dampen any sudden upward or downward shift in prices. The only exception to this rule is double-hull tankers since they have a relatively short historical base. Tankers continue to be grouped into double hull and non-double hull categories, since double-hull is the only configuration allowable by OPA 90, and single hull vessels calling U.S. port will have to be phased out by 2010. Since few U.S. flag vessels have been built in recent years, replacement costs for these vessels have been based on a cost differential applied to the replacement cost for foreign flag vessels. The FY00 ten year averages reflect continued decreasing construction costs for most vessel types.

Fixed Operating Costs. These costs have been reanalyzed for 1999 price levels. Ship operators and ship management companies were surveyed for the tanker and bulker costs, while containership lines were surveyed for those costs. The Foreign Vessel Operating Costs are based on an Open Registry, which is a flag of convenience with ITF (International Transport Workers' Federation) approved crews. U.S. Vessel Operating Costs reflect the higher crew costs incurred with U.S. crews. Vessel Replacement costs continue to constitute the largest percentage of Operating costs (about 50%) followed by Crew costs (about 25%). The vessel operators continue to search for ways to reduce their operating costs as competition remains strong, with rates, revenues and profits squeezed.

Vessel Characteristics. The vessel characteristics remain unchanged. Regression equations for the vessel characteristics, which include length, beam, draft, immersion rate, horsepower, and speed can be found in Appendix A. Standard errors of the estimates and R-squared measurements have been provided to facilitate risk and uncertainty analysis. Although the regression equations were estimated based on metric measures and presented with conversion factors in the appendix, the vessel dimensions in the cost tables are all in feet. All weights (deadweight, fuel consumption, tpi) are in metric tonnes.

Tanker characteristics and equations are the same regardless of single or double hull characteristics. Also, the regression estimates continue to be inaccurate for the post-panamax (beam > 106') containerships characteristics because of relatively few data points, so actual vessel characteristics were used in place of the regression estimates.

Fuel Costs. Fuel consumption rates remained the same. Heavy fuel oil (HVO) prices are up slightly reflecting the recent surge in prices after historic lows. The recent doubling of fuel prices is dampened as it is only a small period of time in the 5 year moving average. The prices used to produce the fuel costs are from Fairplay magazine and are based on the overall average of weekly prices at nine bunkering locations worldwide including New York, Houston and Los Angeles in the U.S., for the 60 month period ending September 1999. Prices were adjusted to 1999 price levels using the U.S. Gross National Product Implicit Price Deflator. Most prices appeared to be linked to the value of the dollar, hence this GNP index was deemed a suitable proxy for multiple country-specific inflation rates. The bunkering locations, monthly prices and price adjustments are presented in Appendix B.